

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
B. Pharm. – SEMESTER – I • EXAMINATION – SUMMER • 2014

Subject Code: 2210001

Date: 18-06-2014

Subject Name: Unit Operation-I

Time: 02:30 pm - 05:30 pm

Total Marks: 80

Instructions:

1. Attempt any five questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

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|-------------|---|-----------|
| Q.1 | (a) Explain various mechanisms of size reduction along with examples for each. | 06 |
| | (b) Write a note on construction, principle, working, advantages, disadvantages and applications of fluid energy mill. | 05 |
| | (c) Explain in detail the objectives for size reduction. | 05 |
| Q.2 | (a) Describe with a clean and labelled diagram the construction, principle, working, advantages, disadvantages and application of cyclone separator. | 06 |
| | (b) Write a detailed note on elutriation method for size separation. | 05 |
| | (c) Give the classification of powders based on size and list the specification and standard for sieves. | 05 |
| Q.3 | (a) Explain the mechanisms for solid – liquid and solid – solid mixing. | 06 |
| | (b) Define and explain the following:
1). Mixing 2). Mixing index | 05 |
| | (c) Explain in detail the Planetary mixer. | 05 |
| Q.4 | (a) What is Unit Cell. Explain various types of crystal shape and crystal habit. | 06 |
| | (b) Explain in detail the theory of crystallization. | 05 |
| | (c) 1). Differentiate crystallization and precipitation.
2). Explain various method for achieving supersaturation. | 05 |
| Q.5 | (a) Explain Mier's Super saturation theory. Discuss its limitations and applications. | 06 |
| | (b) Classify crystallizers. Write a detailed note on construction, principle, working, advantages, disadvantages and application of any one. | 05 |
| | (c) Discuss the various theories for calculation of energy requirement in size reduction. | 05 |
| Q. 6 | (a) Enumerate various types of extraction processes. Explain in detail supercritical fluid extraction method. | 06 |
| | (b) Differentiate maceration and percolation along with examples. | 05 |
| | (c) Discuss various solvents used in extraction process. | 05 |
| Q.7 | (a) Write a note on temperature measurement in automated process control system. | 06 |
| | (b) Explain various industrial hazards and the measures to combat them. | 05 |
| | (c) Explain in detail flow level measurement in automated process control system. | 05 |
